

Implementing International Virtual Elementary Classroom Activities for Public School Students in the U.S. and Korea

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Abstract: In today's global society, individuals with an understanding of different cultures that have the ability to apply this understanding to real world problem solving are more likely to become leaders. Preparing students for a global society is becoming a significant part of education. While many international online exchange projects have been conducted at schools to help expose students to the world and experience international collaborations, few studies have focused on both developing intercultural competence for elementary school students and discovering practical ways of implementing a cross-cultural exchange program into the public elementary school systems as well. This study, International Virtual Elementary Classroom Activities (IVECA), planned to explore how American and Korean students can develop culturally meaningful interactions through asynchronous online communications in a content management system (CMS), Blackboard; and investigate the factors or strategies useful for integrating IVECA into public school curricula. Data were collected using observation and interview methods, and also included reviewing students' journals. The data analysis involved interpretive analytic induction. Findings indicated that IVECA (a) promotes students' intercultural competence; (b) developed their social interaction skills both in the regular classrooms and the virtual classroom; (c) facilitated diverse students' motivations for learning at school; (d) enhanced writing and reading skills; and (e) engaged learning disabled students in the classroom activities. Additional findings from this study indicate that (a) a systematic support system for teachers' technology use and instructional design is necessary, and (b) school administrators' positive perception toward cross-cultural exchange activities and their coherent connections between state learning standards and IVECA objectives are important. Further considerations are addressed and the different influences of IVECA on the U.S. students and Korean students and its implementation, which takes into consideration such influences, will also be discussed.

Keywords: international virtual elementary classroom exchanges, intercultural competence, cultural awareness, online content management system, technology integration strategies, instructional technology support system

1. Introduction

Two assumptions guided the design of this study. First, that public schools need to prepare students to become capable global citizens equipped with intercultural competence and, second, that experiencing different cultures through direct interaction with people in other countries can help prepare students to become competent global citizens. International Virtual Elementary Classroom Activities (IVECA) were created to provide intercultural exchange activities for students in the U.S. and Korea. In addition, the study was constructed to examine key factors in implementing IVECA into public elementary schools.

Through Blackboard, a web-based content management system (CMS), elementary school students in both the U.S. and Korea studied cooperatively. These students focused on *cultural awareness* - defined here as the "understanding of the variety and relevance of all cultures (Guicherme, 2002)." A class of 12 U.S. fifth grade students, a class of 33 Korean sixth grade students, their teachers, and the U.S. school principal participated in a nine-week pilot study concerning the implementation of instructional technology for developing students' intercultural competence. By providing information and communication technologies (ICT) such as email and asynchronous discussion board, this project intended to identify the effect of the International Virtual Elementary Classroom Activities (IVECA) on learning in the U.S. The project also discovered the needs for developing further implementation of the IVECA. This study also examined the changes of students' cultural awareness and intercultural skills, and explored how the interaction between students and teachers meaningfully influences this change and how the school systems can provide support in implementing the IVECA. The researcher collected data through interviews with students, teachers, a principal, students' journals, online discussion board messages, and observations in the U.S. classroom, informal discussions with teachers, and relevant documents such as emails from teachers and teachers' instructional materials. Using the interpretive analytic induction (Erickson, 1986), key assertions about program implementation and effects were developed. Since the researcher was physically unable to observe the Korean site, data resources from Korea were limited to interviews and journals; thus, only overall comparisons focusing on the different influence of IVECA on the U.S. and Korean sites will be discussed at the end of this paper in light of the conclusion of this study.

2. Literature review

The current *global economy* requires people to have communication competence dealing with information and knowledge (Nanclares, 2001). To educate our children to become "*global citizens* who preserve the variety and vitality of life" (Davis, 2005), educators and educational leaders are increasingly pressured to change the curriculum and learning environments (Davis, 2005; Leeman & Ledoux, 2003).

With respect to the condition of becoming a global citizen, many researchers emphasize the need for an awareness and understanding of cultural differences and their relevance to human interactions (Guicherme, 2002). Calling attention to *intercultural competence*, Davis (2005) points out that "in order to survive today's complex world, people need to understand different cultures.... adjustment and positive attitudes toward different cultures prompts people to take active roles in the diverse society." Researchers stress effective and appropriate communication skills in working with people from diverse cultures (Wiseman, 2001; Fantini, 2000). In other words, intercultural competence involves being aware of a diversity of cultures, positively adjusting toward the different culture, and communicating with each other with an open mind. In addition, researchers in the field of business stress the development of intercultural skills and the need to become culturally competent in the complex international marketplace (<http://www.irc-international.com/index.html>). Stating that intercultural competence is a new requirement for diverse organizations due to the globalization of working life, Korhonen (2002) also suggests that the development of intercultural competence should begin as early as possible. Students' intercultural competence can be obtained through enhanced cultural awareness and cannot be excluded from the critical educational goals in our schools (Lustig & Koester, 1993). Consequently, directly interacting and communicating with people from other cultures will be the most effective way to perceive and learn about cultural diversity (Fantini, 2000).

Online research networks such as Global School Net (<http://www.globalschoolnet.org/GSH/index.html>) and Schools Online (<http://www.schoolsonline.org/whoweare/mission.htm>) have conducted international classroom exchange projects through the Internet to provide students with international or intercultural learning environments using Information and Communication Technology (ICT). Despite considerable numbers of projects introduced by these organizations, it is hard to find either qualitative or quantitative research focusing on students' intercultural competence development in the context of international virtual classroom environments. Instead, Schools Online released an evaluation report after performing a collaborative Internet project with three schools in Macedonia and one elementary school in Denmark. Simovska (2001) evaluated the project based on the categories of students' collaborative participation, the use of Information Technology, peer consultants, and project organization. According to the report, the project was successful in terms of facilitating students to actively and cooperatively participate in school and community improvement projects. The study indicated additional research, related to administrative support and facilitation in public schools regarding international exchange, was needed.

However, specific plans or strategies for implementing such international online exchange programs into public school systems in different nations have not been studied sufficiently. Accordingly, discovering certain approaches to effectively integrate and implement online intercultural exchange programs into public school systems become important, since different countries have different public school systems. In addition, the desired approach should be addressed by considering ways to integrate technology into regular school environments as well as the international online teaching and learning systems.

Regarding technology integration into schools, many researchers pointed out the importance of the teacher's role (Tearle, 2004; Richardson, 2000; Bird, 2001; OFSTED, 2002). The needs of effective support for teachers' ICT use (Bird, 2001; OFSTED, 2002) are also noted. Dexter (2002) presented Educational Technology Integration and Implementation Principles (eTips) that are applicable to general school environments. In order to accomplish successful technology integration into schools, she addresses two main premises in the eTips. First, the teachers must play the role of instructional designer, planning the use of the technology and second, the school environment must provide appropriate technology support for the teachers in this role. Her emphasis that teachers should be able to design the use of technology into their instruction so that their students' learning outcomes may reflect on their selection of technology is consistent with other researchers.

Richardson (2000) also emphasized that teachers should be able to integrate both technological and pedagogical aspects into their teaching. Accordingly, the school's role should be to provide teachers with technical support that they can access conveniently and flexibly (William, 2000). The policy of access to technical support can be provided by administrative leadership. The National Center for Education Statistics (2000) described principal leadership as one of the most important factors affecting the effective use of

technology in classrooms. When understanding how technology can best support instruction and assessment, principals tend to provide teachers with sufficient supportive guidance (Kincaid & Feldner, 2002). Those studies contribute to developing fundamental factors and principles in integrating technology into schools in general; however, they do not demonstrate the concrete ways of integrating online teaching and learning systems with public school systems. Therefore, it will be necessary to explore how the roles of school teachers, administrators, and supporting systems of the school are transformed in an online teaching and learning environment that is integrated with regular classroom activities.

With regard to the online teaching and learning environment, many researchers have studied how to best support an online instructor's teaching activities in terms of facilitating desirable outcomes in students' learning. Incorporating the book, "Essential Elements: Prepare, Design, and Teach Your Online Course" written by Erbium, McIntyre et al. (2002), Harms et. al. (2006) discusses three instructional roles – designer, teacher, and facilitator – of an online teaching and learning system, Virtual School, essential for successful virtual schooling. The designer's role is defined as including two aspects: structural support and instructional strategies. Structural support is related to scheduling, planning, and managing necessary support. Instructional strategies are applied to provide diverse environments for supporting students' learning activities. The teacher's essential roles are to provide informational materials, to facilitate discussion, and to promote active participation. Lastly, facilitators are needed mainly to support Virtual school students in their local contexts. More importantly, facilitators provide an immediate, personal, face-to-face communication option; they can act as problem-solvers, mentors and friends. Although it is useful in planning Virtual Schooling in terms of assigning key role players, this discussion does not handle the issue of how to integrate virtual schooling into public schools' systems.

2.1 Research question

- How do the teachers and students in two selected public elementary schools in the U.S. and Korea engage in culturally meaningful interactions involving cultural awareness and social interaction?
- What factors should be considered when implement IVECA programs into public elementary school settings in the U.S. and Korea?

3. Method

Qualitative research methods were selected in order to focus on culturally meaningful interactions found in the students' activities in the context of international and virtual learning environments. Assuming that students' meaning making and teachers' role play will be influenced by school system and structure, this study examined the following: a) students' behaviors b) teachers' instructional strategies in integrating IVECA into regular classroom activities and c) school administrators' roles under the school systems. The researcher played various roles that may be needed to manage this project, such as a virtual administrator, virtual assistant and or facilitator. Figure 1 shows this project's contextual map depicting the interactions (arrows) among the role players and participants.

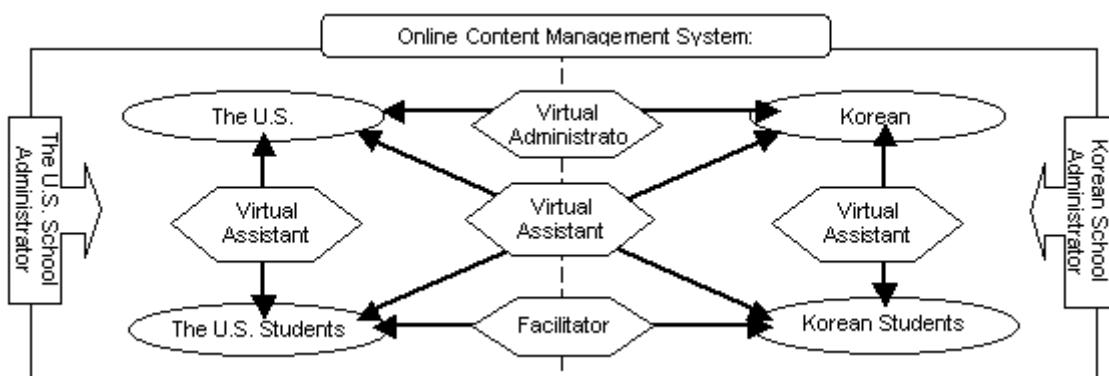


Figure 1: Contextual map of IVECA project

Observations of students' and teachers' activities, interviews with students, teachers, and the school administrator, and students' journals provided the main sources of data. Erickson's interpretive analytic induction approach was chosen to generate assertions from the data and to interpret meanings from the students' interactions, teachers' implementations, school administrator and school systems' impact. Two

classes in the U.S. and Korea participated in IVECA based on weekly topics and activities provided through Blackboard.

3.1 Participants and research site information

American 5th graders (12 out of 17 students) in a public elementary school (School A) class and Korean 6th graders (33 out of 33 students) in a public school (School B) class were selected as the population for this study. Korean public-school students learn English beginning in 3rd grade, focusing on listening and speaking, and they begin to practice listening, speaking, reading, and writing in 5th grade. Thus, the 6th grade students were considered proficient enough in English writing for the exchanges.

The American classroom was selected based on the teachers' level of interest in the study and her availability in the study period. The Korean classroom was chosen by selecting a school in the region – the capital city Seoul – with students of approximately middle-level learning achievement and reasonable written English skills to allow meaningful interaction through Blackboard. The volunteering Korean teacher's interest level and availability were also considered. While the American class has two ethnic groups consisting of eight African-Americans and nine Caucasians, the Korean class is composed solely of Asian students.

The U.S. teacher (Ms. B) has four years of teaching experience, possesses a teaching certificate, and has taught in the school for three years. Ms. B also worked in the Peace Corps for a year before teaching at school A and has an interest in international education. The Korean teacher (Ms. H) also has a teaching certificate, but had only one year of teaching experience before taking her 6th-grade students this year. She taught Elementary English in the previous year and has received all necessary training for English education through a prestigious teacher's college in Korea and an on-going training program; however, she is not confident in writing or speaking English with native speakers.

School A can use either 12 laptops or a computing lab once a week (one or two hours of internet access per week are possible). School B has two hours of computer lab and internet access every week. These two schools were connected through IVECA on the CMS Blackboard so that the analysis unit was the two classes' interactions connected for this single case study. School A had a stricter policy for students' Internet access than School B; the American students (in school A) were not allowed to access to the Internet without the teacher's presence, while the Korean students (in school B) could enter the computer lab anytime and use the Internet connection.

3.2 Procedure and intervention

Korea's centralized curriculum and the U.S.'s decentralized curriculum were examined common topics relevant to cultural issues were selected for the students' activities. The suggested topics and activities are related to these cultural issues, and students performed individual assignments as well as group projects. According to the weekly suggested topics and activities, Ms. H designed weekly lesson plans for her English Class and Ms. B planned her Reading and Writing in English (replaced pseudonymously and hereafter referred to as RWE) classes. Blackboard provided relevant teaching and learning resources on the web. Although providing topics and suggesting relevant activities to accomplish the topics, whole lesson plans and complete teaching resources were developed by teachers in order to use their own pedagogical strategies for integration with their curriculum.

In this study, the researcher played a role in assisting with scheduling students classes, supporting technological issues, managing learning content and student activities on Blackboard, and mediating both school teachers' communication. The researcher initially conducted 20 minutes of Blackboard orientation for teachers and 60 minutes for students. For about 45 minutes out of 2 hours of RWE class on every Thursday, students posted their projects on the Blackboard discussion board for Korean students to read; they also shared their feelings and thoughts regarding the Korean students' project mainly during class or daily break time throughout the week. Students visited and used Blackboard at anytime and anywhere. While participating in these activities, the researcher asked students to write three personal reflective journals on the activities. Students were recommended to use multimedia products such as digital photos and video/audio clips for the postings. The researcher also assisted with producing and posting the pictures or video clips when needed.

3.3 Data collection and methods

The researcher, as an instrument of this study, was equipped with knowledge, skills, and experience on elementary education, elementary EFL education, instructional design and technology, technology implementation into a school, and technology support for instructors and students. The researcher possesses a bachelor's degree in Elementary Education from Seoul National University of Education in Seoul Korea and has six years of teaching experience in Seoul elementary schools. While teaching under the Korea Ministry of Education campaign, the researcher took charge in implementing the School Information Automatization System in her school and conducted research on a plan for elementary English education enhancement. In her Masters program in Instructional Technology in the U.S., the researcher studied the implementation of information communication technology into K-12 schools. This study examined the terms of nation's economic and social growth and determined the E-learn system as one of the desired educational systems for current and future societies. Through her comparative study on the needs for teachers to integrate technology in their teaching under the school system of both Korea and the U.S., the researcher built up a strong understanding of the different curriculums and school systems/policies in both nations. Currently, she is pursuing Ph.D. in Instructional Technology program in the U.S. and works at an Educational Technologies Offices of her school for supporting faculty and students' technology uses in their teaching and learning. Thus, researcher played roles as not only the research instrument, but also a technological and instructional supporter in this study.

Observation of U.S. student changes in cultural awareness and the influence of IVECA in their ordinary lives, involved observation of physical and virtual classroom activities, an informal discussion with Ms. B, interviews with students, Ms. B and a school principal (Mr. H), and reviews of relevant documentation including students' journals and pictures. The researcher mostly sat, wrote notes, and videotaped in the back of the classroom so as not to disturb classroom activities— all observations were recorded on both field notes and video files for multiple reviews. The researcher observed both the teacher and the students' noticeable behaviors and/or interactions, and simultaneously recorded classroom activities on notes and analytic memos (Miles and Huberman, 1994)..

Interviews were recorded on digital audio files. Observations of virtual classroom activities were performed daily for nine weeks from 10 minutes through 120 minutes each day. Informal talks and discussions with Ms. B were recorded right after every weekly activity for 30 to 45 minutes. Seven total U.S. students were interviewed for 30 to 40 minutes each during and after this study period. In order to make students feel comfortable when talking about their thoughts and feelings, interviews were performed in empty classrooms, a meeting room at the library, or an empty school cafeteria after classes ended or before classes began. Based on observation, diverse types of students were selected for the interviews. A 90 minute interview was conducted with Mr. H after completing the study at the school.

Students' journals were collected at the beginning, the middle, and the end of the study. Observation data including analytic memos and the transcriptions and analytic notes of interviews were rewritten on Excel. The rewritten data was then chunked by dates and contents in the Excel spreadsheets. Korean site data were collected from interviews conducted by researcher with 10 students and their teacher and from 33 students' journals that are randomly submitted to the Korean teacher. Each interview with Korean students took between 40 minutes to two hours. These interviews were conducted on BudyBudy messenger (one of the Korean instant messengers that is popular among K-12 students) voice chatting after the IVECA activities ended, and a separate formal interview took place with a Korean teacher that lasted roughly 100 minutes via Skype messenger voice chatting. In addition, research also involved informal phone/email conversations with the aforementioned Korean teacher.

3.4 Data analysis

According to the analytic induction, (Erickson, 1986) method, all observation field notes, interview notes, audio-visual recordings, and reflective journals were reviewed multiple times in order to generate empirical assertions. To address the assertions and to affirm their validity, entire data corpuses were repeatedly reviewed to find supportive and non-supportive evidence for the assertions developed. The evidence was systematically examined by looking for frequently occurring patterns and coherent changes in participants' interactions and reflections. It was determined by organizing them according to meaningful items linked to conceptual frameworks of this study. The Excel program was used for linking the items to the data written on the excel spreadsheets, sorting out the items, and finding patterns. Key assertions were identified through the generalization of the items within the cases of school A and B. After contextually looking through the positive effects of the study and their possible causes, this study determined the vital factors for

implementing IVECA into a public school. The constructed assertions will be listed below as statements concerning how IVECA activities influenced students' learning and school life. Summaries of quotes from collected data, which will be elucidated through interpretive comments on the quotes, will accompany the constructed assertions. The teachers' implementation strategy and its relationship with the school administrator and school system will be depicted through short summaries of the quotes from the interviews with the teachers from both schools and the principal from school A.

To enforce validity, the researcher put efforts on collecting rich data through videotaping of observations, audio recording of interviews and verbatim transcribing of them. Supporting and the discrepant data were examined through diverse data, and various types of students were selected for interviews and continuous discussions with the teachers about their students were performed to reduce bias. In addition, through the discussions and interviews, feedback on some of the conclusions of this study and suggestions were asked to the teacher and school administrator.

4. Findings

Assertions developed through analyzing the data collected from the U.S. and Korean classrooms are listed below, and some of the evidence will be provided. Quotes were directly excerpted from students' writing and speaking so that some grammar or spellings would be wrongly displayed.

4.1 IVECA helps both motivated and unmotivated learners effectively discover different cultures and enthusiastically explore new and unknown learning opportunities through virtual interactions.

There were engaged (motivated) and disengaged (unmotivated) students in learning and both types of learners valued this project as an effective opportunity to obtain knowledge about a country on the other side of the world. These students also learned the value of each respective culture and their traditions directly from the students living in either country. Students who enjoy learning at school appreciated IVECA as an effective way of obtaining knowledge about other cultures:

- "This is cool because I learn from people in Korea. Just like us, we are talking with them and learning their culture, food, clothes..."

In addition, students who were having problems learning and/or concentrating in school or had been suspended from school showed positive reactions toward IVECA through the Blackboard discussion board and interviews:

- "I think there are many things that I can learn in your country... I would like to hear more about your folk tales next time."
- "(Before the IVECA project) All the time same schedules...same teachers, same subjects, doing same things everyday... (During the project) I feel pretty good! I am thinking what to write today on Blackboard, what Korean students wrote, and how they are doing in Korea...It's really fun to think about. It is very different from other classes... It is interesting they wrote. Those are very new I never heard before....Oh yeah, I wish I could do this all---the time, e---everyday."

While most Korean students were excited about the project, regardless of their learning levels, some students were concerned with two aspects at the beginning of the project: their English skills and time-consumption. However, most students eventually appreciated IVECA since IVECA not only improved their English skills, but also made them enjoy using English: particularly, while learning new information directly from American students:

- "It was amazing that I learn something new through IVECA."
- "I never knew communicating in English can be so exciting like this. This is good because you can ask each other to get information although you are not good at English."

4.2 IVECA promotes students' acknowledgement of cultural differences and similarities by helping them become aware of their own culture as well as others'

Students in the U.S. became aware of the cultural differences between Americans and Koreans while exchanging information. When introduced to certain Korean customs or traditions from Korean students, American students introspectively became inquisitive of not merely Korean culture/tradition, but also their own culture. Consequently, IVECA, through direct interaction and communication, allowed them to realize how different these cultures are:

- "I have thought about my culture but it's way different from theirs!"

- "I like this project because it let us talk about our country to another country. I think it is very interesting to see and hear about different other country's cultures and customs."

It was observed during their own classroom exercises that American students recognized similarities between the two cultures such as family-gathering and preparing special foods for Holidays, etc.

Korean students seemed to put more effort on posting correct and sufficient information about their culture and society, and they seemed to appreciate their own culture, language and nation during the activities. In addition, they felt more comfortable communicating with American students by gradually realizing that American students' school life and their ways of thinking were similar to theirs:

- "It's good that I am learning too while introducing my country to America."
- "Through these activities, I feel that I should know well about our country and language."
- "They are just like us... their interest, classrooms... so I started feeling easy about writing"

5. 3 IVECA improves students' intercultural competence in terms of displaying openness to the world, showing positive affect toward the other culture, obtaining communicative strategies, and being mindful of other cultures

It was observed that students began to think more openly about the world throughout the project. At the beginning of the project, when asked about their perception regarding visiting or exploring other countries, students commented that they had not thought about traveling abroad, save a few students that had family members overseas or whose parents came from different countries. While these students were thinking of leaving the country, they were most interested in visiting the country/countries where their family members or parents lived. However, after the second and third journal entries, students began to look upon other cultures positively. In fact, the same students showed more interest and were more open to places beyond where family members lived and to the world, writ large. Above all, the students' became more curious about places throughout the world:

- "I want to interact with more than one culture, so maybe one or two or even three, like Romania, Italy, and or Africa."
- "One day I would like to go to Korea... I would like to talk to younger kids from a different country".

Because of the language barrier between Americans and Koreans, the students began to understand English in a unique way. Although Korean students sometimes wrote English awkwardly, American students - that also did not yet have a firm grasp on the English language - gradually found their own way of understanding the Korean version of English. This was most likely influenced by the fact that Korean students, when communicating their American counterparts, wrote English in a different manner. Students demonstrated how IVECA naturally helped them to attain a communicative strategy:

- "I didn't like about it (at the beginning), which is not being able to understand what they wrote. It is kind of hard to understand them. But, I think over the time I get used to it I pretty much understand them."

She said she picked the words from Korean students' messages and guessed at what they were trying to say. This strategy was also obtained by Korean students:

- "I realized that I was reading English without spending lots of time at the end. I was just reading through the messages and I thought I mostly understood."

IVECA provided American and Korean students the opportunity to be mindful of one another's different cultures. Through direct communication with Korean students, students could have a chance to mindfully consider the other students' feelings and positions; for example,

- "Seoul (Capital name of Korea) may be spelled funny but this is not funny. It is very serious and I think that you should put a lot of thought into it. What if they made full [fool] of our capital because they haven't heard it before? Don't you think they will laugh? Don't you think that is the way they feel? Like I said, it is not funny. I think Seoul is a good capital for Korea."

4.3 IVECA provides opportunities to extend social skills for learning disabled students

A student with Asperger's Syndrome took advantage of IVECA to build a good friendship through social interactions. Autism Spectrum Disorder (ASD) is "a developmental disability that impacts the normal development of the brain in the areas of social interaction and communication skills", Asperger's Syndrome is "a form of autism where the child has fewer developmental delays, and their repetitive behaviors may be

more subtle." (http://www.kylestreehouse.org/what_is_autism.cfm). The virtual environment with asynchronous discussion boards helped the ASD student communicate comfortably with friends since the counterpart students could neither hear or see the student with ASD. Jim (the student with the syndrome) described how he found communicating with Korean students via IVECA compensated for his poor relationship with physical classroom friends. Jim states,

- "I don't want to be known on the eastern side of the world as a not. I want to be known on the eastern side of the world this Jim will solve the future and offer well-life center keeper... There are many mistakes and underestimation in school... I DO care (about others' bad ways of treating him)... The benefit of this project is meeting people cross the world. I mean it's great thing to know friends so far off but it's really great you won't be able to see.... You won't be able to judge person by the cover. And it will make to see inside and it won't be as hard as to see outside."

4.4 IVECA develops students' writing skills by providing opportunities to write for 'real' audiences

Since the students have a real audience that actually reads and may potentially respond to what respective students have written, students realize the importance of being aware of the audiences' positions and expectations in their writing. For instance, an American student explained her consideration in writing:

- "(Before writing) I think what kind of writing they are using there.... how they understand our writing... Maybe I think it will be good to use right grammar for them because they might learn with books...."

In addition, both nations' students became more interested in writing because computers allowed them to share their writing electronically with audiences from other countries that directly provided responses and feedback. Students commented,

- "Makes me feel like, Hey, I am sending part of my genetic code over the world, part of my thought!"
- "I write a lot to Korean students with a computer. I like it because they are gonna read what I wrote and we are talking about it."
- "I really wonder what American students will respond to our postings. Oh~ I cannot wait to see them!"

4.5 IVECA serves as a pacing guide and teaching resource for teachers, fitting well within the system of decentralized U.S. curriculum

This IVECA structure helped Ms. B (American teacher) save time for creating a separate unit plan, or select the whole contents for IVECA, as they would normally do for their regular classes under decentralized curriculum system. Ms. B. could focus on designing each lesson because IVECA provided topics and suggested activities incorporated with RWE curriculum. In addition, the virtual administrator (researcher) adjusted teaching paces when each school had special events by mediating communication between the American teacher and the Korean teacher. Since IVECA's predetermined teaching plans helps teachers design and integrate their respective curriculum into classroom activities, other teachers expressed interest in IVECA informally with Mrs. B. teachers' interest in IVECA.

Because of the language barrier and Korea's centralized curriculum system strictly regimented, Korean's could not devote as much time to IVECA as their American counterparts. For instance,, Ms. H. was able to integrate IVECA into her other subjects hours since the IVECA topics and activities are related to certain parts of the subjects (such as, social studies and Korean language). However, Ms. H (Korean teacher) commented that she needed more time to prepare her students in reading and posting messages, but she only had limited subject hours and teacher-discretion time to devote to IVECA exclusively.

4.6 Technological and instructional support systems are demanded

The teachers needed a technological assistant throughout the study. For example, although the creative idea of exchanging role-play activities with counterpart students was suggested by teachers, the researcher made it happen by providing technological support, such as producing appropriately sized of video clips of students' role-playing.

The researcher observed that both teachers needed additional skills for teaching online: particularly, facilitating students' activities and providing a sense of community, preparing instructional materials on the

web, giving appropriate feedback, etc. Ms. B commented in the interview that she desire to learn more about how to manage multimedia production and online teaching tools on Blackboard. She urged that technological proficiency would give her more freedom to design diverse lessons and effectively direct and facilitate students' activities.

4.7 School administrator's understanding of IVECA influences teacher's effective implementation of IVECA: School administrator's understanding consists of making meaningful connections among his school goals, his educational philosophy, and the role of the IVECA

The school principal, Mr. H, believed IVECA was an innovative method for getting his students to reach the school's curricular objectives. He further stated, that IVECA's innovative methods encouraged teachers to integrate technology into classroom activities. According to Mr. H., the goal of school A is to help students become knowledgeable and productive citizens that are capable of understanding, managing, and solving diverse problems in a multicultural society. From the principal's perspective, the way to achieve this goal is to support teachers in promoting students' intellectual, physical, and social development: especially, by providing additional learning experiences beyond the school's walls. Mr. H. insisted that this is his mission for school A. In terms of expanding the experience to the world, Mr. H expressed that he found the IVECA program fits with the school's mission as well as the RWE curriculum. His positive understanding of IVECA led to cooperative discussions between himself and Ms. B about more effectual implementation measures. As a result of Mr. H.'s positive response to IVECA, Ms. B. asked for more laptop computers. On the contrary, the Korean administrator did not actively participate in IVECA's implementation. Consequently it was often observed that the Korean teacher had problems implementing IVECA into her classes. Ms H. found it difficult to arrange computer lab hours and to discuss effective ways to integrate IVECA into her teaching.

5. Discussion and suggestion

The findings will be discussed in light of two main purposes of this study: exploring the influence of IVECA and determining key factors that need to be considered for IVECA's implementation. Also, each discussion will be followed with comparative comments about the results from Korean site data, which will be discussed to suggest further research methods.

5.1 IVECA's influence on an elementary school classroom

Fantini (2000) noted "while acknowledging that contact and experience with people of other languages and cultures in a positive setting provides excellent opportunities to provoke and foster intercultural (communicative) competence development, it is also clear that once the process has begun, intercultural competence development is an on-going and lengthy — often a lifelong process." This study certainly proved students' progress in developing intercultural competence that appeared in the first journal entries and grew throughout the project. As the IVECA project went on, students frequently displayed their curiosities and interests in interacting with people in diverse cultures. Additionally, both nations' students expressed their desire to meet and talk with the opposing country. This openness to the world and the positive affection toward other cultures are frequently referred to as one of the major topics in researching intercultural competence (Wiseman & Koester, 1993) and this study showed that the openness and fondness toward the world have been fostered by participating IVECA.

Obtaining communicative strategies of understanding diverse types of English has been emphasized as one of the intercultural competences that students should be equipped with (Guicherme, 2002). Results from this study showed that students gradually developed the communicative strategies through IVECA. Both students demonstrated that understanding each others' writing somehow became easier .In particular, Korean students' biggest focus was on using English for IVECA and stated that IVECA enhanced their English skills, helped them feel confident about using English with native speakers, or motivated them to study English harder. This indicates that IVECA naturally provides students with the opportunity to attain the communicative strategy and boosts their motivation for learning English. This result also proves Daoud's study (1998) that cross-cultural exchanges motivate EFL learning and improves writing skills.

Being able to enjoy and contemplate the reasons why some people talk or behave differently is also one of the significant elements of intercultural competences (Kelley & Meyers, 1995). According to Thomton and McEntee (1995), through being mindful, "students create new categories in identifying, naming, or thinking about self, others, and situations, which help them to acknowledge the possibility and existence of equally legitimate other ways of viewing the world." They say that, thereafter, students gain awareness of more than

one perspective that is one of the “key qualities of a mindful state”. IVECA helped American students voluntarily take others’ positions and discipline themselves to be decent and mindful about others’ feelings through their considerations of different cultures and situations. Reversely, some of Korean students’ were cautious about communicating with American students because they assumed that American students might be annoyed at Korean students’ poor English. However, they tried to identify themselves as American students in order to understand native English speakers’ point of view and realized that American students think and feel similarly to them. By being mindful, both nations’ students were able to reflect others’ perspectives and achieve thoughtful understanding of each other.

Students’ interest in reading and writing about culture intensified through IVECA participation. Liu (2002) discovered the fact that international pen-pal writing through the Internet increases motivation in literacy learning and enhances cultural awareness. By providing quasi-pen-pal writing experiences that students can not only share their classroom activities, but also personal interests such as hobbies and school life, IVECA contributed to developing cultural awareness and engaging students into English learning at school. In addition, most students showed positive attitudes toward using computer in their writing and it affected their “wiring motivation, communication, empowerment, and learning” (Warschauer, 1996).

This study also revealed that IVECA not only engages diverse students in different learning achievement levels, but also helps a child with Asperger’s Syndrome (a kind of ASD) enjoy social interactions with friends overseas since the virtual environment provides more predictable and prepared interaction opportunities without having face-to-face encounters. According to Dautenhahn (2000), “children with autism prefer a predictable, structured and in this way ‘safe’ environment” where they can control their interaction. Throughout the study, the American student with Asperger’s Syndrome showed that he favored the fact that Korean students could not see his face, and he displayed his cautious attitude when writing messages to Korean students. The value of IVECA was discovered in that its system and activities engage diverse types of not only normal students but also a socially disabled student.

5.2 Key factors for effective implementation of IVECA

Teachers’ lack of time in designing instruction and planning technology uses in the instruction has been pointed out as one of the significant barriers for implementing educational technology into classroom (Dexter, 2002; Tearle, 2004). The structured IVECA program contributed to reducing the American teacher’s planning hours at school. Since having flexibility in scheduling the teaching units and selecting contents, the decentralized U.S. curriculum makes it easier to incorporate IVECA with local school RWE curriculum. However, the Korean teacher had difficulties integrating IVECA with her regular classes under centralized curriculum system. That was because the pre-determined contents of Korean school’s curriculum were not replaceable with that of IVECA, and students needed more time in completing IVECA assignments. Although her professionalism was displayed by applying some of the activities into Korean or Social Studies classes, IVECA could not reduce Korean teachers’ time-consumption. Thus, the researcher as the virtual administrator and assistant had to provide more instructional support for Korean teacher. This suggests that future research should provide teachers with effective and necessary virtual administration and the appropriate amounts of weekly activities that fit in both systems of decentralized and centralized curricular. Also, instructional design models that demonstrate ways of integrating IVECA into the context of centralized curriculum and decentralized curriculum will help teachers integrate IVECA with subject curricular in an efficient manner.

Educational technology can be successfully integrated into classroom when schools provide effective access to supported technology (Bird, 2001; OFSTED, 2002; Dexter, 2002). School administrators’ understanding about the advantages of using technology in teaching-and-learning can influence schools’ technology policies (Kincaid & Feldner, 2002). Effective communication channels in a system facilitate and maintain diffusion of a certain innovation. That is because the individual members can positively observe the innovation process after their acceptance of the new idea, (Roger, 2003). The supportive communication between the American principal, who connected IVECA goals with school goals and provided flexible access to technology, and the American teacher who employed IVECA, reinforced IVECA’s implementation into the classroom. Yet, the Korean school did not have a similar relationship due to the Korean school principal’s lack of participation in the IVECA project.

Teachers were most concerned about technological issues that arose when American and Korean students communicated: particularly, the utilization of multimedia tools and Blackboard functions. The teachers’ questions were usually premised on the utilization of multimedia tools and Blackboard functions that need to be used when American and Korean students to communicate. It showed that teachers need instructional

guides as well as technical support in order to integrate technology (IVECA) into their classrooms (Ronnkvist, 1998). William (2000) identified training and on-going support as one of the needs for teachers in successfully integrating technologies. Consequently, this study suggests that future research should provide professional development programs that teach teachers how to use classroom technologies (CMS and multimedia tools) and equip them with instructional strategies. In addition, discovering supportive resources in existing public school systems and reorganizing their roles for virtual classroom activities should enable and subsequently maintain teachers' integration of IVECA into local school curriculum.

Based on the development of the study and its finding, a model has been developed that will be used to guide future research. In the model, the virtual administrator's role is to establish communication between U.S. and Korean teachers by scheduling and adjusting each class. Virtual administrators will also consult exchange activity planning with both teachers. The role of the virtual assistant is to help both teachers assign projects and give feedback to their students. The administrator in each school takes the role of linking the activities to the school's goal and to provide technical support as needed. Through virtual exchange activities, eventually, students will obtain intercultural competence and become well prepared, contributing global citizens. Teachers will crucially influence the project's utility by effectively integrating IVECA with their local classroom activities. Teachers' activities will help their students achieve IVECA's primary objective of helping students become inter-culturally competent, through IVECA activities.

This study explored how IVECA influences elementary students and teachers in the U.S. and Korea. It discovered significant elements that should be considered for IVECA's effective integration into a small unit: a local school curriculum and system in two nations. By testing the IVECA implementation model briefly described above, future research seeks to prove the feasibility of integrating IVECA into a larger unit scale.

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